Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Dynamical changes in plasmon behavior of transition metal alloys
KEN PODOLAK, SUNY Plattsburgh, JAMIE SMITH, Washington University St. Louis, DANIEL STOWE, SUNY Plattsburgh — A plasmon is as a ray of light bound onto a surface of a conducting metal, propagating among the surface and presenting itself as an electromagnetic field. The ability to control or manipulate these plasmons in subwavelength volumes is recently become of interest to improve functionality and performance of optical devices. Furthermore, plasmons can be used to monitor interactions in a biospecific surface on a metal layer. The plasmon waves of light occur at the interface between the metal and dielectric, measurable by absorption peaks in the UV or visible light. A thin top layer of gold or copper are utilized with alloys of metals underneath composed of nickel, iron, or manganese. A Cary-OLIS spectrophotometer measures the optical absorption of these samples where surface and bulk plasmon energy peaks are identified. The full width half maximum of the plasmon peaks appears to broaden over a range of alloys, which represents a change in the strength of the resonance. Further discussion of this will be presented. [ref] K.R. Podolak, S.B. Wagner, and J.A. Smith, "Manganese doping influence on the plasmon energy of nickel films," Surface Science 606, 996 (2012).

Ken Podolak
SUNY Plattsburgh

Date submitted: 27 Nov 2012 Electronic form version 1.4